

J EOLIST



PCT09

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/936,133

DATE: 01/24/2002  
TIME: 12:52:50

Input Set : A:\ES.txt  
Output Set: N:\CRF3\01242002\I936133.raw

*pp 2-11*  
**Does Not Comply**  
**Corrected Diskette Needed**

W--> 3 Sequenzprotokoll *delete*  
6 <110> APPLICANT: Schering Aktiengesellschaft  
8 <120> TITLE OF INVENTION: Menschliche Nukleinsuresequenzen aus homo sapiensen  
9 Endothelzellen  
11 <130> FILE REFERENCE: 51690AWOM1XX00-P  
13 <140> CURRENT APPLICATION NUMBER: US/09/936,133  
14 <141> CURRENT FILING DATE: 2001-12-20  
16 <160> NUMBER OF SEQ ID NOS: 60

*Use English  
for a U.S.  
application*

ERRORED SEQUENCES

18 <210> SEQ ID NO: 1  
19 <211> LENGTH: 1835  
20 <212> TYPE: DNA  
21 <213> ORGANISM: homo sapiens  
23 <400> SEQUENCE: 1  
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26 agctctttta gaagaatgca cagaagagtc attctggcac ttttggatag tacataagat 120  
27 tttctttttt ttttttaa at ttttttaaat agtcacattc agctcgcttg ctcaaaccag 180  
28 actcccacat tgggtgagca agatgagccc ataggattcc agagttaata cgtaaccgta 240  
29 tatacaaaca gccaaaaaac cataatggtg ccacagggat ggagcagga agggcatctc 300  
30 taacgtgtcc tctagtctat cttegtctaa cagaaccac gttacacatg ataactagag 360  
31 agcacactgt gttgaaacga ggatgctgac cccaaatggc acttggcagc atgcagttta 420  
32 aagcaaaaga gacatccttt aataactgta taaaatccag gcagttccat taaaggggtt 480  
33 aagaaaacca acaacaacaa aaagcgaggg actgtctgtt gtcactgtca aaaaggcact 540  
34 tggagttaat gggaccagga ttggaggact cttagctgat acagatttca gtacgatttc 600  
35 attaaaaggc ttggatgtta agagaggaca ctacagcgtt cctgaaggga gacgctgaga 660  
36 tggaccgctg agaagcggaa cagatgaaca caaaggaatc aaatctttac aaccaaattg 720  
37 catttaagcg acaacaaaaa aaggcaaacc ccaaaacgca acctaacc aa gcaaaatct 780  
38 aagcaaaatc agacaacgaa gcagcgatgc atagctttcc tttgagagaa cgcatacctt 840  
39 gagacgtac gtgccaacct aagttctcaa cgacagcttc acagtaggat tattgtgata 900  
40 aaaatgactc aagcgatgca aaaagtttca tctgttccca gaatccgagg gagaactgag 960  
41 gtgatcgta gagcatagcg acatcacgtg cggtttctta atgtccctgg tggcggatac 1020  
42 gccgagtcct cggaaggaca tctggacacc actttcagcc acctccttgc aggggcgaca 1080  
43 tccgccaag tcatccttta ttccgagtaa taactttaat tcctttctaa catttacacg 1140  
44 gcaaacagga atgcagtaaa cgtccacgtc cgtcccacgg ctgggctgcc gttccgtttc 1200  
45 ctccacgaac gggtagcgc ttccatgaga aaggatattt ggcaatttta tattccacag 1260  
46 tcaggtgggt ctgcgatagc tcatttaatg ttaaagccca tcaggggcct ctctcccggt 1320  
47 ttctgccagg ggtttttctt gtcttctcct tggcgagctc gtgggcagat cttctctggt 1380  
48 gggggctggc tgctggctcc gagggggcat ccgagtcctg tctggtcgtc tctctctgca 1440  
49 ggctgggcag ctggccacca cttctccgac tcgaccctc caacaagcat cgcagggcac 1500  
50 tgtcctcggg ggtacagacc gtggtccac attcgtacc actctgttcc acgtcatcca 1560

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51 ggtacacgag ctgcgtgtag gccgtgctgt ctggggctcg aggetctttc tgctggtgct 1620  
52 cttggacggg cgggtagttc tgctgcagag acaaagcatt tccccctccc ttccgggctg 1680  
53 attttggttc attcatatct acgccagagt ccaaactggc atcattactt ccgttccttc 1740  
54 cagctctttg gagaatcaat gtatgaatgt ctaacctgac cgttggacct gccatccaag 1800  
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60 <212> TYPE: DNA  
61 <213> ORGANISM: homo sapiens  
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67 tcaacttact tctgtggcc cattaggga gtggtgacct cgggagctat ttgctgttg 180  
68 agtgcacaca cctggaaaca tactgtcttc attttttcat ccacatcagt gagaaatgag 240  
69 tggcccgtta gcaagatata actatgcaat catgcaaca agctgcctaa taacatttca 300  
70 tttattacag gactaaaagt tcattattgt ttgtaaagga tgaattcata acctctgcag 360  
71 agttatagtt catacacagt tgatttccat ttataaaggc agaaagtcct tgttttctct 420  
72 aaatgtcaag ctttgactga aaactcccgt ttttccagtc actggagtgt gtgcgtatga 480  
73 aagaaaatct ttagcaatta gatgggagag aagggaata gtacttgaaa tgtaggcct 540  
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77 <211> LENGTH: 516  
78 <212> TYPE: DNA  
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84 tcagcccaga catgtgcac tacatcacag aggacatgt catgtcgcg aacctgaatg 120  
85 gacactctgg gttgattgtg aaagaaattg ggtcttccac ctcgagctct tcagaaacag 180  
86 ttgtaagct tctgtggccag agtactgatt ctcttccaca gactatatgt cggaaaccaa 240  
87 agacctccac tgatcgacac agcttgagcc tcatgacat cagactttac cagaaagact 300  
88 tctgcgcat tgcaggtctg tgcaggaca ctgctcagag ttacacctt ggatgtggcc 360  
89 atgaactgga tgaggaaggc ctctattgca acagttgctt ggcccagcag tgcacaca 420  
90 tccaagatgc ttttccagtc aaaagaacca gcaataactt ttctctggat ctactcatg 480  
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94 <211> LENGTH: 1099  
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96 <213> ORGANISM: homo sapiens  
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101 cctgctcact ggatcacagc ccattgtagg tggggcatgg tggggatcag ggcccctggc 120  
102 ccacggggag gtagaagaag acctgggtccg tgtaagggtc tgagaagggt ccctgggtcg 180  
103 ggggtgcgtc ttggccttgc cgtgcccctc tcccccggt gaggcagcga cacagcaggt 240  
104 gcaccaactc cagcagggtta agcaccagg agatgagtcc aaccaccaac atgaagatga 300  
105 tgaagatggt cttctccgtg gggcgagaga caaagcagtc cagcaggtag gggcagggtg 360  
106 ctgctgga cacaacacag ggtccatgg tccagccgta caggcgccac tggccataga 420  
107 ggaagcctgc ctctagcaca ctcttgaga gcacactggc gacatagggt cccatcagtg 480  
108 ctccgcggat gcgcaggcga ccattctctg ccaccagat cttggccatc tgacgtctca 540  
109 cgcccgccag cgcccgtcc acctgtgggt ccttgccgg cagtggccgc agtccccct 600

(global error)

insert cumulative base totals at right margin of each line

same error

same

P3

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110 ccttctgccg cagccgctct tctcgccgag acaggtaaag gacatggccc aggtagacca 660
111 ggggtgggtgt gctgacgaag aggaactgca gcacccagta gcggatgtgg gagatgggga 720
112 aggcctggtc atagcagacg ttggtgcagc ctggctgggc cgtgttacac tcgaaatctg 780
113 actgctcgtc accccacact gactcgccgg ccaggcccag gatgaggatg cggaagatga 840
114 agagcaccgt cagccagatc ttacccacca cggctcgagt ctccctggacc tggccagca 900
115 acttctccac gaagccccag tcacccatgg ctccccgggc tccgtcggca aggagacaga 960
116 gcacgtcagt gtgtcagcat ggcacccctc tcgttcgccc agcaacaagc ctgcagggag 1020
117 gtctgccacg cccgttctac cgctgcctg ccgggcgggc caggtggagg tggggacgat 1080
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121 <211> LENGTH: 1015
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129 agtggggagc ataatagcaa acacccctt ggctgcaca tgtacaggaa tgggaccagg 180
130 ttggggcaca gccatggact tccccgcctt ggaatgtgtg gtgcaaagtg gggccagggc 240
131 ccagacccaa gaggagaggg tggctcgcag acaccccggt atgtcagcat ccccgacact 300
132 gccttctggc ggcacctccc ggggtgtgtg ttgagtcagc aggcattggg tgagagcctg 360
133 gtatatgtct ggaacagggt gcaggggcca agcgttctc ctccagcctt gacttggggc 420
134 atgcaccccc tctcccccaa acacaaacaa gcacttctc agtatgggtg caggacaggt 480
135 gtcccttcag tctctgtgtt atgacctcaa gtccacttg ggccttcag cccagcctgt 540
136 gttgtaacct ctgcgtctc aagaccacac ctggaagatt cttcttccct ttgaaggaga 600
137 atcatcattg ttgctttatc acttotaaga catcttctg ggcacggaca agttaaacag 660
138 aatgtgtctt cctccctggg gtctcacacg ctcccacgag aatgccacag gggccgtgca 720
139 ctgggcaggc ttctctgtag aaccccaggg gcttcggccc agaccacagc gtcttgccct 780
140 gaggctagag caggagatcc cgaacttctg cattcacaga ccacctccac aattgttata 840
141 accaaaggcc tctgtttctg ttatttctac taaatcaaca tgctattttg ttttactca 900
142 cttctgactt tagcctcgtg ctgagccgtg tatccatgca gtcattgtca cgtgctagtt 960
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146 <211> LENGTH: 2313
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148 <213> ORGANISM: homo sapiens p.4
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154 ggtattacct gcgtacttc ttctctctc tctccctcat ccaattctc atcatcctg 180
155 ggctcgtgct cttcatggtc tatggcaacg tgcacgtgag cacagagtcc aacctgcagg 240
156 ccaccgagcg ccgagccgag ggcctataca gtcagctcct agggctcacg gcctcccagt 300
157 ccaacttgac caaggagctc aacttcacca cccgcgcca ggatgccatc atgcagatgt 360
158 ggctgaatgc tcgcccgcac ctggaccgca tcaatgccag ctcccgccag tgccagggtg 420
159 accgggtcat ctacacgaac aatcagaggt acatggctgc catcatctt agtgagaagc 480
160 aatgcagaga tcaattcaag gacatgaaca agagctgcga tgccctgtc ttcatgctga 540
161 atcagaaggt gaagacgctg gaggtggaga tagccaagga gaagaccatt tgcactaagg 600
162 ataaggaaag cgtgctgctg aacaaacgcg tggcgaggga acagctggtt gaatgcgtga 660
163 aaacccggga gctgcagcac caagagcgcc actggccaag gagcaactgc aaaaggtgca 720
164 agccctctgc ctgcccctg acaaggacaa gtttgagatg gaccttcgta acctgtggag 780
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165 ggactccatt atcccacgca gcctggacaa cctgggttac aacctctacc atccccctggg 840
166 ctcggaattg gctccatcc gcagagcctg cgaccacatg cccagcctca tgagctccaa 900
167 ggtggaggag ctggcccgga gcctccgggc ggatatcgaa cgcgtggccc gcgagaactc 960
168 agacctccaa cgccagaagc tggaagccca gcagggcctg cgggccagtc aggagcgaa 1020
169 acagaagggtg gagaaggagg ctacggcccg ggaggccaag ctccaagctg aatgctcccg 1080
170 gcagaccag ctacgctg aggagaaggc ggtgctgcgg aaggaacgag acaacctggc 1140
171 caaggagctg gaagagaaga agaggaggc ggagcagctc aggatggagc tggccatcag 1200
172 aaactcagcc ctggacacct gcatcaagac caagtcgcag ccgatgatgc cagtgtcaag 1260
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174 gaggaagatc ctggagtccc agaggccccc tgcaggcatc cctgtagccc catccagtgg 1380
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176 gcagggatat gctcacagcg cccgacacaa cccctcccgc ccgccccaa ccaccaggg 1500
177 ccaccatcag acaactccct gcatgcaaac cctagtacc ctctcacacc cgcaccgcg 1560
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180 tatagcgatg gcgtcgtgca gatgcagcac gtgcacaca gacatgggga acttggcatg 1740
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182 tcacacagac gggcgatgg catcacacag acggtgatga tgtcacacac agacacagt 1860
183 acaacacaca ccatgacaac gacacctata gatatggcac caacatcaca tgcacgcatg 1920
184 ccttttcaca cacactttct acccaattct cactagtgt cacgttcccc cgacctggc 1980
185 acacgggcca aggtaccac aggatcccat cccctcccgc acagccctgg gcccagcac 2040
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187 gaggtgagaa caggaagcca ttcacctccg ctcttgagc gtgagtgtt ccaggacccc 2160
188 ctcgggggccc tgagccgggg gtgagggtca cctgttgctg ggaggggagc cactccttct 2220
189 cccccaactc ccagccctgc ctgtggcccg ttgaaatgtt ggtggcactt aataaatatt 2280
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193 <211> LENGTH: 389
194 <212> TYPE: DNA
195 <213> ORGANISM: homo sapiens
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201 tattctaaaa tcagatcctt acagatccag atttcaggaa acaaatacat aggggactaa 180
202 ctttccttgt tcagattagt ttttctcctt tgcaccagc tatataatat gaggaagtat 240
203 tgacttttta aaagtgtttt agttttccat ttctttgata tgaaaagtaa tatttcggga 300
204 gaacctgag ctattaataa tctatgtggc tagtgcgtat atattgttct gaatttgttc 360
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207 <210> SEQ ID NO: 8
208 <211> LENGTH: 157
209 <212> TYPE: DNA
210 <213> ORGANISM: homo sapiens
212 <400> SEQUENCE: 8
214 tgctttaaac agctgtgtca aaaactgaca tcagagagta aattgaattt ggtttttag 60
215 gaagcaggaa gcaagcccac tcaaacgtga aatttggcat gagggatcca gtaactttct 120
E--> 216 cctcaatctg tgaactatat gtgagtttga tattttg same
218 <210> SEQ ID NO: 9
219 <211> LENGTH: 561
220 <212> TYPE: DNA
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p.5

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221 &lt;213&gt; ORGANISM: homo sapiens

223 &lt;400&gt; SEQUENCE: 9

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227 tgaactgaac tattctgtta catatggttg acaaactctgt gtgttatttc tttctacct 180
228 accatattta aatttatgag tatcaaccga ggacatagtc aaaccttcga tgatgaacat 240
229 tcctgatttt ttgctgatt aatctctgtt gagctctact tgtggtcatt caagatttta 300
230 tgatgttgaa aggaaaagtg aatatgacct ttaaaaattg tattttgggt gatgatagtc 360
231 tcaccactat aaaactgtca attattgcct aatgttaaag atatccatca ttgtgattaa 420
232 ttaaacctat aatgagtatt cttaatggag aattcttaat ggatggatta tccccgatc 480
233 ttttctttaa aatttctctg cacacacagg acttctcatt ttccaataaa tgggtgtact 540
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E--> 234 ctgccccaat ttctaggaaa a *same*

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237 &lt;211&gt; LENGTH: 1508

238 &lt;212&gt; TYPE: DNA

239 &lt;213&gt; ORGANISM: homo sapiens

241 &lt;400&gt; SEQUENCE: 10

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245 gggctcgcgga gcagtacgag gacaagtacc agcagcagct cctctgaaca gagactgcta 180
246 ggatcctcct tctcctccgg gcctgttgcg gatggcataa tccgggtgca acccaaactc 240
247 gagctcaagc cagggtgagct taagccactg agcaagggaag atttgggcct gcacgcctac 300
248 aggtgtgagg actgtggcaa gtgcaaagtgt aaggagtga cctacccaag gcctctgcca 360
249 tcagactgga tctgcgacaa gcagtgcctt tgctcggccc agaacgtgat tgactatggg 420
250 acttgtgtat gctgtgtgaa aggtctcttc tatcactgtt ctaatgatga tgaggacaac 480
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252 ggtgtcatgt cctctttttt gccttgttta tgggtgttacc ttccagccaa gggttgcctt 600
253 aaattgtgcc aggggtgtta tgaccgggtt aacaggcctg gttgccgctg taaaaactca 660
254 aacacagttt gctgcaaagt tcccactgtc ccccttagga actttgaaaa accaactag 720
255 catcattaat caggaatatt acagtaatga ggattttttt tttctttttt taatacacat 780
256 atgcaaccaa ctaaacagtt ataactttgg cactgttaat agaaagttag gatagtcttt 840
257 gctgtttgcy gtgaaatgct ttttgtccat gtgccgtttt aactgatag cttgttagaa 900
258 ctgagcta at ggagctcaaa gtatgagata cagaacttgg tgacctatgt attgcataag 960
259 ctaaagcaac acagacactc ctaggcaaaag tttttgtttg tgaatagtac ttgcaaaact 1020
260 tgtaaattag cagatgactt ttttccattg ttttctccag agagaatgtg ctatattttt 1080
261 gtatatacaa taatatattgc aactgtgaaa aacaagtggg gccatactac atggcacaga 1140
262 cacaaaatat tatactaata tgttgtacat tcggaagaat gtgaatcaat cagtatgttt 1200
263 ttagattgta ttttgcctta cagaaagcct ttattgtaag actctgattt ccctttggac 1260
264 ttcattgata ttgtacagtt acagtaaaat tcaaccttta ttttctaatt ttttcaacat 1320
265 attgttttag gttaaagaata tttatttgaa gttttattat tttataaaaa agaattttta 1380
266 ttttaagagg catcttataa attttgcccc ttttatgagg atgtgatagt tgctgcaaat 1440
267 gaggggttac agatgcatat gtccaatata aaatagaaaa tatattaacg tttgaaatta 1500
```

E--> 268 aaaaaaaaa *same*

270 &lt;210&gt; SEQ ID NO: 11

271 &lt;211&gt; LENGTH: 389

272 &lt;212&gt; TYPE: DNA

273 &lt;213&gt; ORGANISM: homo sapiens

275 &lt;400&gt; SEQUENCE: 11

277 gggcagggtga tcagggcaca catttcccgt ccattgagac agtagcattc ccggcaccca 60

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279 aggatgggtg gccagctga agcacaggcc gctctgcaat tgcagataag acagccgtga 180
280 ctgtcctgct ggaaacccaa ggggcagatc ttactgcatg agagctctgg acatttctta 240
281 cagcgacaga tgtcacagcc gtgcttattc ttcagcaatc caagtggaca atacttgtca 300
282 cagattatgg gtctgcactt cttgggcctt gggcggcact cacagatctc acagttttgg 360
E--> 283 acctcggccg cgaccacgct gggtagcga same
285 <210> SEQ ID NO: 12
286 <211> LENGTH: 981
287 <212> TYPE: DNA
288 <213> ORGANISM: homo sapiens
290 <400> SEQUENCE: 12
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294 cccagaagtt tgaggctgta gtaagcttca aaggccactg cactctagct tgggtgaggc 180
295 aagacccttt caagcagtaa gctgcatgct tgcttggtgt ggtcattaaa aaccctagtt 240
296 taggataaca acatattaat cagggccaaa tacaatgtg tgatgcttgt tagtagagta 300
297 acctcagaat caaaatggaa cggttttaca gtgatatcat tatatttcat ttggcagaat 360
298 cattacatca ttggttacac tgaaaatcat cacatgtacc aaaagctgac tcacctagtt 420
299 taggataaca ggtctgcctg tttgaagatg aaaaataata cccattttaa atttgcccta 480
300 ctcaatttcc ttctcagtea cattttaact tttaaacagc taatcactcc catctacaga 540
301 ttaaggtgta tatgccacca aaaccttttg ccacctttaa aatttccttc aaagttttaa 600
302 ctaatgcctg catttcttca atcatgaatt ctgagtcctt tgcttcttta aaacttgctc 660
303 cacacagtgt agtcaagccg actctccata cccaagcaag tcatccatgg ataaaaacgt 720
304 taccaggagc agaaccatta agctgggtcca ggcaagttgg actccaccat ttcaacttcc 780
305 agctttctgt ctaatgcctg tgtgccaatg gcttgagtta ggcttgctct ttaggacttc 840
306 agtagctatt ctcatccttc cttggggaca caactgtcca taaggtgcta tccagagcca 900
307 cactgcatct gcacccagca ccatacctca caggagtcca ctcccacgag ccgctgtat 960
E--> 308 ataagagttc ttttgatgac g same
310 <210> SEQ ID NO: 13
311 <211> LENGTH: 401
312 <212> TYPE: DNA
313 <213> ORGANISM: homo sapiens
315 <400> SEQUENCE: 13
317 ataactacag cttcagcaga caactaaaga gactgcatta aggtgatttc tctggctata 60
318 aagagagccc ggccgcagag catgtgactg ctgggacctc tgggataggc aacactgccc 120
319 tctctcccc agagcgaccc ccggggcagg tgggggcca agaatgacc cagcaactgc 180
320 tccctaccca gcacactctc tttactgcca cctgcaatta tgctgtgaag atgactgggt 240
321 gtggtcatca cgattcagag aaatcaagat ctatgacat tttaggcaaa gagagaaact 300
322 tggagaattg ctgaggacta ctgaaccttg ttttgctttt ttaaaaaata ctaaatcctc 360
E--> 323 acttcagcat atttagttgt cattaaaatt aagctgatat t same
325 <210> SEQ ID NO: 14
326 <211> LENGTH: 1002
327 <212> TYPE: DNA
328 <213> ORGANISM: homo sapiens p.7
330 <400> SEQUENCE: 14
332 gacaatataa aaagtggaaa caagcataaa ttgcagacat aaaataatct tctggtagaa 60
333 acagttgtgg agaacaggtt gagtagagca acaacaaca aagcttatgc agtcaccttc 120
334 ttgaaaatg ttaaatataa gtcctattct ctttgtccag ctgggtttag ctgaggttag 180
335 ccaattactt ctcttaaggt ccatggcatt cgccaggatt ctataaaagc caagttaact 240
```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/936,133

DATE: 01/24/2002

TIME: 12:52:51

Input Set : A:\ES.txt

Output Set: N:\CRF3\01242002\I936133.raw

```
336 gaagtaaata tctggggccc atcgaccccc cactaagtac tttgtcacca tgttgatatct 300
337 taaaagtcac ttttactgtg ttgactcaga atttgggact tcagagtcaa acttcattgc 360
338 ttactccaaa cccagtttaa ttccccactt ttttaagtag gcttagcttt gagtgttttt 420
339 tggctataac cgaaatgtaa atccaccttc aaacaacaaa gtttgacaag actgaaatgt 480
340 tactgaaaac aatggtgccca tatgctccaa agacatttcc ccaagataac tgccaaagag 540
341 tttttgagga ggacaatgat catttattat gtaggagcct tgatatctct gcaaaataga 600
342 attaatacag ctcaaatgga gtagtaacca agcttttctg cccaggaagt aacaaacatc 660
343 actacgaaca tgagagtaca agaggaaact ttcataatgc attttttcat tcatacatc 720
344 attcaataaa cattagccaa gctaattgtc caagccactg tgccagggtat taacaatata 780
345 acaacaataa aagacacagt ccttcctctc aagggtgttc gtctagtagg gaagatgatt 840
346 attcattaaa atttttgggt catcagaatc atgaggagct tgtcaaaaat gtaaatttct 900
347 gcctatgttc tcagatattc tgggttagtc aggagtggga acccaaatc aattctttta 960
E--> 348 acaaacacta aaggtagtcc taacacagge ggtgtgagga cc same
350 <210> SEQ ID NO: 15
351 <211> LENGTH: 280
352 <212> TYPE: DNA
353 <213> ORGANISM: homo sapiens
355 <400> SEQUENCE: 15
357 cgagggtgggc caccctgtgc tggctcgaga tttttaaatg aggattacat taccctattt 60
358 ataattattcc tattctaatc tattgtattc ttacaattaa atgtatcaaa taattcttaa 120
359 aacattattt agaaacaaac tgcctaatac cttataagac taaaaaatc accaagatga 180
360 aactgtatta tgactctcaa tatttaaaaca tttaaaaaaa tgtagtggtt tgtaagcac 240
E--> 361 caatcttaac tatttcacct gcccgggcgg ccgctcgagg same
363 <210> SEQ ID NO: 16
364 <211> LENGTH: 2041
365 <212> TYPE: DNA
366 <213> ORGANISM: homo sapiens p.8
368 <400> SEQUENCE: 16
370 cccccgcag aactcccccc tggaaatagga tttttaaaac ccttgacaat tagaaatcct 60
371 atagagggtta gcatttttta ggtaaaaaa tgggtgcccc tacagggatc atgcaacttc 120
372 cttaaaacca attcagcaca tatgtataaa gaaccctttt taaaacatt tgtacttgaa 180
373 atacagacac agtgatgctg aagacactaa acaaaaactg aaaagtacta taccttgata 240
374 aattttgtta ttgccttctt tagagacttt ataattctta gttgattttc aaggacttga 300
375 atttaataat ggggttaatta cacaagacgt aaaggatttt taaaaacaa gtattttttt 360
376 ttacctctag catcaattct tttataaaga atgctaaata aattacattt tttgttcagt 420
377 aaaactgaag atagaccatt taaatgcttc taccaaattt aacgcagctt aattagggac 480
378 caggtagata ttttcttctg aacatttttg gtcaagcatg tctaaccata aaagcaaatg 540
379 gaattttaag aggtagattt ttttccatg atgcattttg ttaataaatg tgtcaagaaa 600
380 ataaaaacaa gcactgagtg tgttctcttg aagtataagg gtctaataaa aaataaaaga 660
381 tagatatttg ttatagtctg acattttaac agtcatagta ttagacgttt cgtgaccagt 720
382 gcatttttga ctctctcagg atcaaaatac gagtctgcca actgtattaa atcctcctcc 780
383 accccctcca ccagttggtc cacagcttcc tgggtgggtc ttgtcatcaa atccattggg 840
384 ccgaaatgaa catgaagcag atgcagcttg gagggcccg gctcgagcat tcaactcttg 900
385 ttctgtataa tatagtttat tgtcttttgt tatagcatcc ataagttctt tctgtagagg 960
386 tgggtctcca tttatccaga gtccactggt tgggttatta ccacttaaac cattagtact 1020
387 atgctgtttt ttatacaaaa gcacataagc tgtgtccttt ggaaacctgc tcgtaatttt 1080
388 ctggactgac tgaaatgaag taaatgtcac tctactgtca ttaaataaaa accattctt 1140
389 ttgacatttc cttattttcc aaatcctgtt caaaaactgc actgggacta tctctcccta 1200
390 gtaaatgact ctgggaggat gctaattgcc gagcctcaga ctgggtgtac atctgatatg 1260
```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/936,133

DATE: 01/24/2002

TIME: 12:52:51

Input Set : A:\ES.txt

Output Set: N:\CRF3\01242002\I936133.raw

391 aagagtctgt acttgtgata tttctggcat aagaatagta atgcccactt tcagaggata 1320  
392 taccagagtg aaccacaacg gaacttaata gatagggcac caattttgtg caggaagctt 1380  
393 catcagtccc tgaaggcttt aatttttttag caaggttctc actaagatca gtgaagtcaa 1440  
394 catctacaga ccaactttct gacaatgaag agaaagaagt aattcttcta actggcaact 1500  
395 ccaaaaccag tggccagtga tacattgtct aaaattttcc ttctcacatg atactttctga 1560  
396 tcatatgaaa atctcaggag agtaagaata aggtattcag gttcctccgt gatttgcata 1620  
397 gttttctcag cattttgcag agaggcacag ttttcacaat aatattggtt atcaccagta 1680  
398 agaattctctg gagcccaaaa aataattttag taagtcagtt actgaagggtg tggtttcacc 1740  
399 tcccgggtttc tgagggtacat ctttattaac aagaatcttg ttagattcgt tagggacaga 1800  
400 agtggttttca gaacagtaaa actcattagg aggactgcct atgggttttt cattcacaag 1860  
401 tgagtcacag atgaaggcag ctgttggttg attataaact actggctctt ctgaaggacc 1920  
402 ggttacagac gcttgcatga gaccaccatc ttgtatactg ggtgatgatg ctggatcttg 1980  
403 gacagacatg ttttccaaag aagaggaagc acaaaacgca agcgaaagat ctgtaaaggc 2040

E--&gt; 404 t

406 &lt;210&gt; SEQ ID NO: 17

407 &lt;211&gt; LENGTH: 235

408 &lt;212&gt; TYPE: DNA

409 &lt;213&gt; ORGANISM: homo sapiens

411 &lt;400&gt; SEQUENCE: 17

413 cgccccgggc aggtgtcagg ggttccaaac cagcctgggg aaacacagcg tagaccctc 60

414 acctctacaa ataaaaaatt aaaaaattag ccagggtgtg cagcgaacaa ctgtagtctc 120

415 agatactcag gagactgagc tggaaaggat cacttgagcc caagaagttc aagggtacag 180

E--> 416 tggggccacga tcatgtcatt acactccagc ttgggtgaca aaatgagact gtcta *same*

418 &lt;210&gt; SEQ ID NO: 18

419 &lt;211&gt; LENGTH: 2732

420 &lt;212&gt; TYPE: DNA

421 &lt;213&gt; ORGANISM: homo sapiens

423 &lt;400&gt; SEQUENCE: 18

425 gtgtggagtt tcagctgcta ttgactataa gagctatgga acagaaaaag cttgctggct 60

426 tcatgtttat aactacttta tatggagctt cattggacct gttaccttca ttattctgct 120

427 aaatattatc ttcttggtga tcacattgtg caaaatggtg aagcattcaa acactttgaa 180

428 accagattct agcagggttg aaaacattaa gtcttgggtg cttggcgctt tcgctcttct 240

429 gtgtcttctt ggcctcacct ggtccttttg gttgcttttt attaatgagg agactattgt 300

430 gatggcatat ctcttcacta tatttaatgc tttccaggga gtgttcattt tcatctttca 360

431 ctgtgctctc caaaagaaag tacgaaaaga atatggcaag tgettccagac actcatactg 420

432 ctgtggaggc ctcccaactg agagtcacca cagttcagtg aaggcatcaa ccaccagaac 480

433 cagtgtctgc tattctctctg gcacacagag tcgtataaga agaattgtga atgatactgt 540

434 gagaaaacaa tcagaatctt cttttatctc aggtgacatc aatagcactt caacacttaa 600

435 tcaaggtggc ataaatctta atatattatt acaggactga catcacatgg tctgagagcc 660

436 catcttcaag atttatatca tttagaggac attcactgaa caatgccagg gatacaagtg 720

437 ccattggatac tctaccgcta aatggttaatt ttaacaacag ctactcgctg cacaagggtg 780

438 actataatga cagcgtgcaa gttgtggact gtggactaag tctgaatgat actgcttttg 840

439 agaaaatgat catttcagaa ttagtgcaca acaacttacg gggcagcagc aagactcaca 900

440 acctcgagct cacgctacca gtcaaacctg tgattggagg tagcagcagt gaagatgatg 960

441 ctattgtggc agatgcttca tctttaatgc acagcgacaa cccagggtcg gagctccatc 1020

442 acaagaact cgaggcacca cttattctc agcggactca ctcccttctg tacciaaccc 1080

443 agaagaaagt gaagtccgag ggaactgaca gctattgtct ccaactgaca gcagaggctg 1140

444 aagatcacct acagtcctcc aacagagact ctctttatac aagcatgcc aatcttagag 1200

445 actctcccta tccggagagc agccctgaca tggaagaaga cctctctccc tccaggagga 1260

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/936,133

DATE: 01/24/2002

TIME: 12:52:51

Input Set : A:\ES.txt

Output Set: N:\CRF3\01242002\I936133.raw

```
446 gtgagaatga ggacattttac tataaaaagca tgccaaatct tggagctggc catcagcttc 1320
447 agatgtgcta ccagatcagc aggggcaata gtgatggtta tataatcccc attaacaaaag 1380
448 aaggggtgtat tccagaagga gatgttagag aaggacaaat gcagctgggtt acaagtcttt 1440
449 aatcatacag ctaaggaatt ccaagggccca catgcgagta ttaataaata aagacacccat 1500
450 tggcctgacg cagctccctc aaactctgct tgaagagatg actcttgacc tgtggttctc 1560
451 tgggtgtaaaa aagatgactg aaccttgacg ttctgtgaat ttttataaaa catacaaaaa 1620
452 ctttgatatat acacagagta tactaaagtg aattatttgt tacaagaaa agagatgcc 1680
453 gccagggtatt ttaagattct gctgctgttt agagaaattg tgaaacaagc aaaacaaaac 1740
454 tttccagcca ttttactgca gcagctctgtg aactaaattt gtaaataatgg ctgcaccatt 1800
455 tttgtaggcc tgcattgtat tatatacaag acgtaggctt taaaatcctg tgggacaaat 1860
456 ttactgtacc ttactattcc tgacaagact tggaaaagca ggagagatat tctgcatcag 1920
457 tttgcagttc actgcaaactc ttttacatta aggcaaagat tgaaaacatg ctttaaccact 1980
458 agcaatcaag ccacaggcct ttttcatat gtttcctcaa ctgtacaatg aactattctc 2040
459 atgaaaaatg gctaaagaaa ttatatattt ttctattgct agggtaaaat aaatacattt 2100
460 gtgtccaact gaaatataat tgtcattaaa ataattttta agagtgaaga aaatattgtg 2160
461 aaaagctctt ggttgcacat gttatgaaat gttttttctt acactttgtc atggtaagtt 2220
462 ctactcattt tcaactcttt tccactgtat acagtgttct gctttgacaa agttagtctt 2280
463 tattacttac atttaaattt cttattgcca aaagaacgtg ttttatgggg agaaacaaac 2340
464 tctttgaagc cagttatgtc atgccttgca caaagtgat gaaatctaga aaagattgtg 2400
465 tgtcacccct gtttattctt gaacagaggg caaagagggc actgggcact tctcacaac 2460
466 tttctagtga acaaaagggtg cctattcttt tttaaaaaaa taaaataaaa cataaatatt 2520
467 actcttccat attccttctg cctatatatta gtaattaatt tattttatga taaagtctta 2580
468 atgaaatgta aattgtttca gcaaaattct gctttttttt catccctttg tgtaaacctg 2640
469 ttaataatga gccatcact aatatccagt gtaaagttta acacggttg acagtaaata 2700
E--> 470 aatgtgaatt ttttcaagtt aaaaaaaaaa aa none
472 <210> SEQ ID NO: 19
473 <211> LENGTH: 276
474 <212> TYPE: DNA
475 <213> ORGANISM: homo sapiens
477 <400> SEQUENCE: 19
479 ctccctaaat gatttttaaaa taaattggat aaacatatga tataaagtgg gtactttaga 60
480 aaccgccttt gcatattttt tatgtacaaa tctttgtata caattccgat gttccttata 120
481 tattccctat atagcaaacc aaaaccagga cctcccaact gcagcctca agtccctgtg 180
482 gagcactctg gcaactggat ggcctactt gctttctgac aaaatagctg gaaaggagga 240
E--> 483 gggaccaatt aaatacctcg gccgcgacca cgctgg none
485 <210> SEQ ID NO: 20
486 <211> LENGTH: 2361
487 <212> TYPE: DNA
488 <213> ORGANISM: homo sapiens p.10
490 <400> SEQUENCE: 20
492 attgtaccag ccttgatgaa cgtgggcctt gcttcgcttt tgagggccat aagctcattg 60
493 cccactggtt tagaggctac cttatcattg tctcccgta ccggaaggtt tctcccaagt 120
494 cagagtttac cagcagggat tcacagagct ccgacaagca gattctaaac atctatgacc 180
495 tgtgcaacaa gttcatagcc tatagaccg tctttgagga tgtagtggat gtgcttgctg 240
496 agtggggctc cctgtacgtg ctgacgcggg atgggcgggt ccacgcactg caggagaagg 300
497 acacacagac caaactggag atgctgttta agaagaacct atttgagatg gcgattaacc 360
498 ttgccaaagag ccagcatctg gacagtgatg ggctggccca gattttcatg cagtatggag 420
499 accatctcta cagcaagggc aaccacgatg gggctgtcca gcaatatatc cgaaccattg 480
500 gaaagttgga gccatcctac gtgatccgca agtttctgga tgcccagcgc attcacaacc 540
```

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/936,133

DATE: 01/24/2002  
TIME: 12:52:51

Input Set : A:\ES.txt

Output Set: N:\CRF3\01242002\I936133.raw

```
501 tgactgccta cctgcagacc ctgcaccgac aatccctggc caatgccgac cataccaccc 600
502 tgctcctcaa ctgctatacc aagctcaagg acagctcgaa gctggaggag ttcatcaaga 660
503 aaaagagtga gagtgaagtc cactttgatg tggagacagc catcaaggtc ctccggcagg 720
504 ctggctacta ctcccatgcc ctgtatctgg cggagaacca tgcacatcat gagtggtagc 780
505 tgaagatcca gctagaagac attaagaatt atcaggaagc ccttcgatac atcggcaagc 840
506 tgccttttga gcaggcagag agcaacatga agcgtacagg caagatcctc atgcaccaca 900
507 taccagagca gacaactcag ttgctgaagg gactttgtac tgattatcgg cccagcctcg 960
508 aaggcccgag cgatagggag gccccaggct gcagggccaa ctctgaggag ttcatcccca 1020
509 tctttgccaa taaccgcga gagctgaaag ccttcctaga gcacatgagt gaagtgcagc 1080
510 cagactcacc ccaggggatc tacgacacac tccttgagct gcgactgcag aactgggccc 1140
511 acgagaagga tccacaggtc aaagagaagc ttcacgcaga ggccatttcc ctgctgaaga 1200
512 gtggtcgctt ctgcgacgtc tttgacaagg ccttggtcct gtgccagatg cagcacttcc 1260
513 aggatggtgt cctttacctt tatgagcagg ggaagctgtt ccagcagatc atgcactacc 1320
514 acatgcagca cgagcagtag cggcagggtc tcagcgtgtg tgagcgccat ggggagcagg 1380
515 accctcctt gtgggagcag gcccctagct acttcgctcg caaggaggag gactgcaagg 1440
516 agtatgtggc agctgtcctc aagcatatcg agaacaagaa cctcatgcca cctcttctag 1500
517 tgggtgcagc cctggccccc aactccacag ccacactctc cgtcatcagg gactacctgg 1560
518 tccaaaaact acagaaacag agccagcaga ttgcacagga tgagctgcgg gtgcggcggt 1620
519 accgagagga gaccaccgt atccgcagg agatccaaga gctcaaggcc agtccctaaga 1680
520 ttttccaaaa gaccaagtgc agcatctgta acagtgcctt ggagttgcc tcagtccact 1740
521 tcctgtgtgg ccactccttc caccaacact gctttgagag ttactcggaa agtgatgctg 1800
522 actgccccac ctgcctccct gaaaaccgga aggtcatgga tatgatccgg gcccaggaac 1860
523 agaaacgaga tctccatgat caattccagc atcagctcaa gtgctccaat gacagctttt 1920
524 ctgtgattgc tgactacttt ggcagaggtg ttttcaacaa attgactctg ctgaccgacc 1980
525 ctcccacagc cagactgacc tccagcctgg aggtcgggt gcaacgcgac ctactcatgc 2040
526 actccaggag gggcacttaa gcagcctgga ggaagatgtg ggcaacagtg gaggaccaag 2100
527 agaacagaca caatgggacc tgggcggggc ttacacagaa ggctggctga catgcccgag 2160
528 gctccactct catctaattg cacagccctc acaagactaa agcggaaact tttcttttcc 2220
529 ctggccttcc ttaattttaa gtcaagcttg gcaatccctt cctctttaac taggcagggtg 2280
530 ttagaatcat ttccagatta atggggggga aggggaacct caggcaaacc tctgaagtt 2340
```

E--> 531 ttggaaaaaa aagctggttt c

1770 <210> SEQ ID NO: 60

1771 <211> LENGTH: 747

1772 <212> TYPE: DNA

1773 <213> ORGANISM: homo sapiens

1775 <400> SEQUENCE: 60

```
1777 tttttcaa at cacatatggc ttctttgacc ccatcaata actttattca cacaaacgtc 60
1778 ccttaattta caaagcctca gtcattcata cacattaggg gatccacagt gttcaaggaa 120
1779 cttaaata at atgtatcata ccaaccacag taaaccaagt acaaaaaata ttcatataaa 180
1780 gttgttcaca cgtaggtcct agattaccag cttctgtgca aaaaaaggaa atgaagaaaa 240
1781 atagatttat taactagtat tggaaactaa ctttgtgcct ggcttaaaac ctccctcagc 300
1782 ctgctctgtc ccacacaaat gtttaagaag tcaactgcaat gtactccccg gctctgatga 360
1783 aaagaagccc ctggcacaaa agattccagt gcccctgaag aggtccctt cctcctgtgg 420
1784 gctctcctag aaaaccagcg ggacggcctc cctgctgata ccgtctataa ccttaggggg 480
1785 cctcggggca ggcaacggca gtggactcat ctcggtgatg gctgtagatg ctaacactgg 540
1786 ccaattcaat gccacaccta ctggttaccc tttgagggca tttctccaga cagaagcccc 600
1787 ttgaagccta ggtagggcag gatcagagat acaccogtgt ttgtctcgaa gggctccaca 660
1788 gccagtagc acatgcttgc agaagtagta tctctggact tctgcctcca gtcgaccggc 720
```

E--> 1789 cgcgaaattta gtagtaatag cgggcgc

The types of errors shown exist throughout  
the Sequence Listing. Please check all  
sequences for similar errors.

*see p 11*

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/936,133

DATE: 01/24/2002

TIME: 12:52:51

Input Set : A:\ES.txt

Output Set: N:\CRF3\01242002\I936133.raw

E--> 1791 sequence listing/ 20.12.01

E--> 1793 -2-

*Delite*

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/936,133

DATE: 01/24/2002

TIME: 12:52:52

Input Set : A:\ES.txt

Output Set: N:\CRF3\01242002\I936133.raw

L:3 M:259 W: Allowed number of lines exceeded, (1) GENERAL INFORMATION:

L:13 M:270 C: Current Application Number differs, Replaced Current Application Number

L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:55 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1835 SEQ:1

L:74 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:581 SEQ:2

L:91 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:516 SEQ:3

L:118 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1099 SEQ:4

L:143 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1015 SEQ:5

L:190 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:2313 SEQ:6

L:205 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:389 SEQ:7

L:216 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:157 SEQ:8

L:234 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:561 SEQ:9

L:268 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1508 SEQ:10

L:283 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:389 SEQ:11

L:308 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:981 SEQ:12

L:323 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:401 SEQ:13

L:348 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1002 SEQ:14

L:361 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:280 SEQ:15

L:404 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:2041 SEQ:16

L:416 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:235 SEQ:17

L:470 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:2732 SEQ:18

L:483 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:276 SEQ:19

L:531 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:2361 SEQ:20

L:542 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:179 SEQ:21

L:566 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:905 SEQ:22

L:610 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:2134 SEQ:23

L:646 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1626 SEQ:24

L:678 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1420 SEQ:25

L:698 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:689 SEQ:26

L:714 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:471 SEQ:27

L:738 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:929 SEQ:28

L:776 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1775 SEQ:29

L:811 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1546 SEQ:30

L:832 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:750 SEQ:31

L:925 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:2968 SEQ:33

L:1037 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:6011 SEQ:34

L:1198 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:716 SEQ:36

L:1213 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:395 SEQ:37

L:1224 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:134 SEQ:38

L:1243 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:644 SEQ:39

L:1262 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:657 SEQ:40

L:1293 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1328 SEQ:41

L:1318 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:987 SEQ:42

L:1342 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:956 SEQ:43

L:1359 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:536 SEQ:44

L:1395 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1630 SEQ:45

L:1406 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:169 SEQ:46

L:1427 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:769 SEQ:47

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/936,133

DATE: 01/24/2002

TIME: 12:52:52

Input Set : A:\ES.txt

Output Set: N:\CRF3\01242002\I936133.raw

L:1478 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:2529 SEQ:48  
L:1512 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1552 SEQ:49  
L:1536 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:921 SEQ:50  
L:1550 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:338 SEQ:51  
L:1578 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:1191 SEQ:52  
L:1791 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:60  
L:1791 M:320 E: (1) Wrong Nucleic Acid Designator, NUMBER OF INVALID KEYS:14  
L:1793 M:252 E: No. of Seq. differs, <211>LENGTH:Input:747 Found:765 SEQ:60